Catalog Description and Prerequisites: *MATH 165. Calculus I. 5-6-0. Prerequisite: C or better in MATH 100 or MATH 101, and C or better in MATH 102 or 108. Limits, derivatives and integrals of algebraic functions, applications of derivatives and integrals.*

Required Text and Other Materials: *Calculus*, 9th edition by Varberg, Purcell, Rigdon; Internet access and a *MyMathLab* access code, a notebook or binder, and a scientific or graphing calculator. (TI 83/84 Plus is recommended.) **Calculators with built-in computer algebra systems are prohibited.** *Prohibited* calculators in this category include:

- Texas Instruments having model numbers that begin with **TI-89** or **TI-92** and the **TI-Nspire CAS**—Note: The TI-Nspire (non-CAS) is permitted.
- Hewlett-Packard: **HP 48GII** and all model numbers that begin with **HP 40G**, **HP 49G**, or **HP 50G**
- Casio: **Algebra fx 2.0**, **ClassPad 300**, and all model numbers that begin with **CFX-9970G**

You are responsible for knowing if your calculator is permitted. Check with your instructor if you are not sure if your calculator is prohibited or allowed.

Student Outcome Objectives: Students will:
1. Learn and master basic calculus skills involving limits, differentiation, and integration.
2. Apply these calculus skills in problem solving.

Course Requirements: Students must attend class regularly and punctually. Students should come to class with the textbook, calculator, and notebook or binder. Students should maintain daily access to Course Compass, Blackboard and their Nicholls State email account. Students should complete assigned homework and quizzes *on time* so that learning and test scores may be enhanced. Students are expected to take tests when they are scheduled. ***Test dates will be announced in class and posted on Course Compass and Blackboard.*** It is the student's responsibility to be aware of these announcements or postings. Exceptions are made for university related functions provided appropriate documentation is presented and arrangements are made *prior* to the scheduled exam.

Methods of Evaluation: A final grade will be determined accordingly:

8%   *MyMathLab* Online Homework based upon the average of all assignments (using the *last* attempted score on each assignment)

8%   *MyMathLab* Online Quizzes based upon the average of all quizzes with the two lowest quiz scores dropped - cannot drop either of the last two - (using the *highest* score of 5 attempts on each quiz)

64%   average of the four in class chapter tests (each test worth 16%)

20%   comprehensive in class final exam

   Grading scale: 90-100% = A, 80-89% = B, 70-79% = C, 60-69% = D, < 60% = F

About *MyMathLab*: Designed to help you succeed in your course, *MyMathLab* provides multimedia instruction, unlimited practice exercises, online homework and quizzes, and an individualized study plan—all correlated to the examples and exercises in your textbook. Your *MyMathLab* course is delivered inside a web-based course delivery system called **CourseCompass**. Before accessing your *MyMathLab* course, you need to register in CourseCompass. (Instructions on how to enroll are provided with this syllabus.)

Exercises generated by *MyMathLab* are iterations of the textbook exercises. Homework may be repeated an unlimited number of times prior to the due date. Quiz questions come directly from the

assigned homework problems. Quizzes may be attempted up to 5 times before the due date; quizzes are drawn from a pool of questions with similar objectives.

MyMathLab Online Homework:

- *The online homework assignments can be attempted an **unlimited number of times prior to the due date**.*

- *The grade on your **last attempt** will be recorded for each homework assignment.*

- *MyMathLab homework can be done from any computer, provided system requirements are met.*

- *You are allowed to get help on homework, but the work submitted must be your own.*

- *Check the online schedule/calendar for the exact date and time the homework is due.*

- *Homework should be used as preparation for quizzes. Do the homework exercises repeatedly until you can do the work correctly without any assistance from notes or software tutorials.*

MyMathLab Online Quizzes:

- *The online quizzes can be attempted up to five times prior to the due date.*

- *Your **best score** will be recorded.*

- *Quizzes can be taken from any computer using MyMathLab, provided system requirements are met.*

- *You are not allowed any assistance on a quiz.*

- *Work submitted must be your own.*

- *Check the schedule/calendar for the exact date and time a quiz is due.*

- *Quizzes should be used as preparation for tests. Take the quizzes until you can do the work correctly without any assistance from notes.*

- *At the end of the semester, the two quizzes with the lowest grades will be dropped with the exception of the last two, which cannot be dropped.*

- ***You must complete a quiz once you begin taking it***. *There is a time limit that will be shown. Do not click outside a quiz window once you have begun the assessment, and do not attempt to search for help buttons, such as View an Example or Help Me Solve This. Such actions will create an **access needed** message causing you to lose that quiz attempt. However, if you have any of the five attempts remaining, you may continue on to begin another attempt at the quiz with no assistance/intervention needed from the instructor.*

Course Content: The following is **proposed course content** with an approximate time frame. There may be slight variations in schedule and/or topics. Students will be advised accordingly. It is the student's responsibility to be aware of announced changes. **Assignments and test dates will be posted in Course Compass and Blackboard**.

CHAPTER 1: FUNCTIONS AND LIMITS (approx. 12 classes)
       1.1: Introduction to Limits
       1.2: Rigorous Study of Limits
       1.3: Limit Theorems
       1.4: Limits Involving Trigonometric Functions
       1.5: Limits at Infinity, Infinite Limits
       1.6: Continuity of Functions

CHAPTER 2: THE DERIVATIVE (approx. 16 classes)
       2.1: Two Problems With One Theme
       2.2: The Derivative

(**TEST #1**)

  2.3: Rules for Finding Derivatives
  2.4: Derivatives of Trigonometric Functions
  2.5: The Chain Rule
  2.6: Higher-Order Derivatives
  2.7: Implicit Differentiation
  2.8: Related Rates
  2.9: Differentials and Approximations

(**TEST #2**)

CHAPTER 3: APPLICATIONS OF THE DERIVATIVE (approx. 14 classes)
  3.1: Maxima and Minima
  3.2: Monotonicity and Concavity
  3.3: Local Extrema and Extrema on Open Intervals
  3.4: Practical Problems
  3.5: Graphing Functions Using Calculus
  3.6: The Mean Value Theorem for Derivatives

(**TEST #3**)

  3.8: Antiderivatives

CHAPTER 4: THE INTEGRAL (approx. 10 classes)
  4.1: Introduction to Area
  4.2: The Definite Integral
  4.3: The First Fundamental Theorem of Calculus
  4.4: The Second Fundamental Theorem of Calculus & the Method of Substitution
  4.5: The Mean Value Theorem for Integrals and the Use of Symmetry

CHAPTER 6: TRANSCENDENTAL FUNCTIONS (approx.5 classes)
  6.1: The Natural Logarithm Function
  6.2: Inverse Functions and Their Derivatives
  6.3: The Natural Exponential Function
  6.4: General Exponential and Logarithmic Functions

(**TEST #4**)

CHAPTER 5: APPLICATIONS OF THE INTEGRAL (approx. 3 classes)
  5.1: The Area of a Plane Region
  5.2: Volumes of Solids: Slabs, Disks, Washers

(**COMPREHENSIVE FINAL EXAM**)